



IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of: G. DIWAKAR VISHAKHADATTA ET AL.

Filed: MARCH 29, 2001

For: DIGITAL INTERFACE IN RADIO-FREQUENCY APPARATUS AND ASSOCIATED METHODS

Serial No.: 09/821,340

Group Art Unit: 2631

Examiner: UNKNOWN

Atty Dkt: SILA:073

Pursuant to 37 C.F.R. 1.8, I certify that this correspondence is being deposited with the U.S. Postal Service in a first class, postage prepaid envelope addressed to: Assistant Commissioner for Patents, Washington, D.C. 20231 on the date below:

11-11-02 Marty Bower  
Date Name

SUPPLEMENTAL INFORMATION DISCLOSURE STATEMENT

Assistant Commissioner for Patents  
Washington, D.C. 20231

Sir:

Pursuant to 37 C.F.R. §§ 1.56, 1.97, and 1.98, it is respectfully requested that this Supplemental Information Disclosure Statement be entered and the document(s) listed on attached Form PTO-1449 be considered by the Examiner and made of record.

In accordance with 37 C.F.R. §§ 1.97(g),(h), this Supplemental Information Disclosure Statement is not to be construed as a representation that a search has been made, and is not to be construed to be an admission that the information cited is, or is considered to be, material to patentability as defined in 37 C.F.R. § 1.56(b).

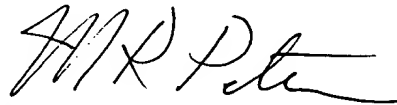
The present Supplemental Information Disclosure Statement is being filed prior to the receipt of a first Official Action reflecting an examination on the merits, and hence is believed to be

timely filed in accordance with 37 C.F.R. § 1.97(b). No fees are believed to be due in connection with the filing of this Supplemental Information Disclosure Statement, however, should any fees under 37 C.F.R. §§ 1.16 to 1.21 be deemed necessary for any reason relating to these materials, the Commissioner is hereby authorized to deduct said fees from Deposit Account No. 10-1205/SILA:073.

A copy of the listed document(s) required by 37 C.F.R. § 1.98(a)(2) are enclosed for the convenience of the Examiner.

Applicant respectfully requests that the listed document(s) be made of record in the present case.

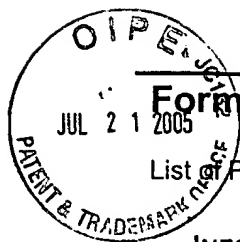
Respectfully submitted,

A handwritten signature in dark ink, appearing to read 'MR Peterson', written over a horizontal line.

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Enclosures

**Form PTO-1449** (modified)

List of Patents and Publications for Applicant's

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(Use several sheets if necessary)

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**U.S. Patent Documents**

Exam. Init.	Ref. Des.	Document Number	Date	Name	Class	Sub Class	Filing Date if App.
	A5	6,148,048	11/14/00	Kerth et al.			9/26/97
	A6	4,713,563	12/15/87	Marshall et al.			5/12/86
	A7	4,070,632	1/24/78	Tuttle			9/22/76
	A8	4,236,252	11/25/80	Kominami et al.			2/6/79
	A9	4,680,588	7/14/87	Cantwell			12/5/85
	A10	4,857,928	8/15/89	Gailus et al.			1/28/88
	A11	4,989,074	1/29/91	Matsumoto			9/21/89
	A12	5,050,192	9/17/91	Nawata			11/21/90
	A13	5,083,304	1/21/92	Cahill			9/28/90
	A14	5,142,695	8/25/92	Roberts et al.			3/21/91
	A15	5,194,826	3/16/93	Huusko			4/12/91
	A16	5,235,410	8/10/93	Hurley			7/10/91
	A17	5,267,272	11/30/93	Cai et al.			2/14/91
	A18	5,283,578	2/1/94	Ribner et al.			11/16/92
	A19	5,345,406	9/6/94	Williams			8/25/92
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	A21	5,442,353	8/15/95	Jackson			10/25/93
	A22	5,451,948	9/19/95	Jekel			2/28/94
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	A24	5,557,642	9/17/96	Williams			11/14/94
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	A26	5,742,189	4/21/98	Yoshida et al.			9/14/95
	A27	5,862,465	1/19/99	Ou			12/30/96

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<b>Form PTO-1449</b> (modified)		Atty. Docket No. SILA:073	Serial No. 09/821,340
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	A28	5,973,601	10/26/99	Campana			12/2/97
	A29	5,758,276	5/26/98	Shirakawa et al.			5/31/96
	A30	5,740,524	4/14/98	Pace et al.			12/14/95
	A31	4,623,926	11/18/86	Sakamoto			11/9/836
	A32	5,341,135	8/23/94	Pearce			4/30/92
	A33	5,241,310	8/31/93	Tiemann			3/2/92
	A34	4,562,591	12/31/85	Stikvoort			2/2/84
	A35	5,243,345	2/21/92	Naus et al.			2/21/92
	A36	5,469,475	11/21/95	Voorman			5/31/91
	A37	4,912,729	3/27/90	Van Rens et al.			12/15/88
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	A39	4,692,737	9/8/87	Stikvoort et al.			10/17/86
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	C21	Hitachi, "RF Transceiver IC For GSM And PCN Dual Band Cellular Systems," HD155121F, ADE-207-265(Z), 1 <sup>st</sup> Edition, November 1998, pp. 1-56.
	C22	Analog Devices, AD7002 Specification, LC2MOS, GSM Baseband I/O Port, Rev. B, 1997, pp. 1-16.
	C23	Analog Devices, AD20msp415, GSM/DCS1800/PCS1900, Baseband Processing Chipset, Rev. O, 1997, pp. 1-7.
	C24	Kwentus et al., "A Single-Chip Universal Digital Satellite Receiver With 480-MHz IF Input," IEEE Journal of Solid-State Circuits, Vol. 34, No. 11, November 1999, pp. 1634-1646.
	C25	Minnis et al., "A Low-If Polyphase Receiver For GSM Using Log-Domain Signal Processing," IEEE Radio Frequency Integrated Circuits Symposium, 2000, pp. 83-86.
	C26	Atkinson et al., "A Novel Approach To Direct Conversion RF Receivers For TDMA Applications," Analog Devices, 1999, pp. 1-5.
	C27	Crochiere et al., "Optimum FIR Digital Filter Implementations For Decimation, Interpolation, And Narrow-Band Filtering," IEEE Transactions On Acoustics, Speech, And Signal Processing, Vol. ASSP-23, No. 5, October 1975, pp. 444-456.
	C28	Hogenauer, "An Economical Class Of Digital Filters For Decimation And Interpolation," IEEE, 1981, pp. 155-162.
	C29	Brandt et al., "A Low-Power, Area-Efficient Digital Filter For Decimation And Interpolation," IEEE Journal Of Solid-State Circuits, Vol. 29, No. 6, June 1994, pp. 679-687.
	C30	Philips Semiconductors, "uua3535-Low-Power GSM GPRS Triple-Band Near-Zero IF Transceiver," October 1999, 4 pgs.
	C31	D'Avella et al., "An Adaptive MLSE Receiver For TDMA Digital Mobile Radio," IEEE Journal On Selected Areas In Communications," Vol. 7, No.1, January 1989, pp. 122-129.

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	C32	Razavi, "CMOS RF Receiver Design For Wireless LAN Applications," IEEE, 1999, pp. 275-280.
	C33	Lucent Technologies, "W3020 GSM Multiband RF Transceiver," Advance Data Sheet, December 1999, pp. 1-44.
	C34	Lucent Technologies, "DSP1620 Digital Signal Processor," Data Sheet, June 1998, pp. 1-178.
	C35	Steyaert et al., "A 2-V CMOS Cellular Transceiver Front-End," IEEE Journal of Solid-State Circuits, Vol. 35, No. 12, December 2000, pp. 1895-1907.
	C36	Paulus et al., "A CMOS IF Transceiver With Reduced Analog Complexity," IEEE Journal Of Solid-State Circuits, Vol. 33, No. 12, December 1998, pp. 2154-2159.
	C37	Analog Devices, "Analog Devices Delivers World's First Open Market GSM Direct Conversion Radio Chipset," November 1999, 4 pgs.
	C38	"Digest Of Technical Papers," 1997 IEEE International Solid-State Circuits Conference, First Edition, February 1997, 5 pgs.
	C39	RF Micro Devices, RF2968, Product Description, Blue Tooth Transceiver, Rev A19, pp. 11-199-11-222.
	C40	Texas Instruments, TRF6901, "Single Chip RF Transceiver," March 2002, pp. 1-29.
	C41	Texas Instruments, TRF6900A, "Single Chip RF Transceiver," September 2001, pp. 1-34.
	C42	Texas Instruments, TRF6900, "Single Chip RF Transceiver, October 1999, pp. 1-32.
	C43	Philips Semiconductor, "Bluetooth RF Transceiver," Data Sheet, UAA3558, December 21, 2000, pp. 1-5.
	C44	Philips Semiconductor, "Image Reject 1 800 MHz Transceiver For DECT Applications," Data Sheet, UAA2067G, October 22, 1996, pp. 1-24.
	C45	Philips Semiconductor, "Analog Cordless Telephone IC," Data Sheet, UAA2062, August 10, 2000, pp. 1-40.
	C46	Philips Semiconductor, "900 MHz Analog Cordless Telephone IC," Data Sheet, UAA3515A, December 12, 2001, pp. 1-44.

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	C47	Philips Semiconductor, "Low Voltage IF I/Q Transceiver," Data Sheet, SA1638, September 3, 1997, pp. 1-26.
	C48	Texas Instruments, "TCS2100 GPRS Chipset Solution," Product Bulletin, 2001, 4 pgs.
	C49	Fague, "Othello: A New Direct-Conversion Radio Chip Set Eliminates IF Stages," Analog Dialogue 33-10, 1999, pp. 1-3.
	C50	Analog Devices, AD6523/AD6524, "GSM Direct Conversion Radio Chip Set," 1999, 2 pgs.
	C51	Lucent Technologies, "Lucent CSP1089 GSM Conversion Signal Processor For Cellular Handset And Modem Applications," Product Brief, February 2001, 2 pgs.
	C52	Lucent Technologies, "Lucent CSP1099 GSM Conversion Signal Processor For Cellular Handset And Modem Applications," Product Brief, February 2001, 2 pgs.
	C53	Lucent Technologies, "Trident," Product Brief, February 2001, 2 pgs.
	C54	Ericsson, "RF Transceiver Circuit For The Digital Enhanced Cordless Telecommunications (DECT) System," PBL40215, January 2001, pp. 1-22.
	C55	Micro Linear, "ML2712 2.4GHz Transceiver," Datasheet, August 2001, pp. 1-21.
	C56	Analog Devices, "GSM/GPRS/DCS1800.PCS1900 SoftFone Baseband Chipset," AD20msp430, 2000, 2 pgs.
	C57	RF Micro Devices, "Polaris Total Radio Solution," Press Release, 2002, 1 pg.
	C58	Tuttle, "Introduction To Wireless Receiver Design," Tutorial, 2002, pp. 2-58.
	C59	Rael et al., "Design Methodology Used In A Single-Chip CMOS 900 MHz Spread-Spectrum Wireless Transceiver," 35 <sup>th</sup> Design Automation Conference, June 1998, 6 pgs.
	C60	Troster et al., "An Interpolative Bandpass Converter On A 1.2- $\mu$ m BiCMOS Analog/Digital Array," IEEE Journal Of Solid-State Circuits, Vol. 28, No. 4, April 1993, pp. 471-477.
	C61	Schreier et al., "Decimation For Bandpass Sigma-Delta Analog-To-Digital Conversion," IEEE, 1990, pp. 1801-1804.
	C62	Shoaei et al., "Optimal (Bandpass) Continuous-Time $\Delta\Sigma$ Modulator," pp. 489-492.
	C63	Schreier et al., "Bandpass Sigma-Delta Modulation," Electronics Letters, Vol. 25, no. 23, November 9, 1989, pp. 1560-1561.

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	C64	Jantzi et al., "Bandpass Sigma-Delta Analog-To-Digital Conversion," IEEE Transactions On Circuits And Systems, Vol. 38, No. 11, November 1991, pp. 1406-1409.
	C65	Crols et al., "An Analog Integrated Polyphase Filter For A High Performance Low-IF Receiver," Symposium On VLSI Circuits Digest Of Technical Papers, 1995, pp. 87-88.
	C66	Aziz et al., "Performance Of Complex Noise Transfer Functions In Bandpass And Multi Band Sigma Delta Systems," IEEE, 1995, pp. 641-644.
	C67	Jantzi, "A Fourth-Order Bandpass Sigma-Delta Modulator," IEEE Journal Of Solid-State Circuits, Vol. 28, No. 3, March 1993, pp. 282-291.
	C68	Liu et al., "Switched-Capacitor Implementation Of Complex Filters," IEEE International Symposium On Circuits And Systems, Vol. 3, 1986, 5 pgs.
	C69	Sedra et al., "Complex Analog Bandpass Filters Designed By Linearly Shifting Real Low-Pass Prototypes," IEEE International Symposium On Circuits And Systems, Vol. 3, 1985, 5 pgs.
	C70	Thurston et al., "Bandpass Implementation Of The Sigma-Delta A-D Conversion Technique," International Conference On Analogue To Digital And Digital To Analogue Conversion, September 1991, 7 pgs.
	C71	Rudell, et al., "Second Generation Multi-Standard Monolithic CMOS RF Transceiver," University of California, Berkeley, Slides 1 through 9 (June 1996)
	C72	Cho, et al., "Multi-Standard Monolithic CMOS RF Transceiver," University of California, Berkeley, Slides 1 through 26 (June 1996)
	C73	Copending U.S. Patent Application Serial No. 09/821,342, filed March 29, 2001, "Partitioned Radio-Frequency Apparatus And Associated Method" (SILA:072)
	C74	Copending U.S. Patent Application Serial No. 09/821,340, filed March 29, 2001, "Digital Interface In Radio-Frequency Apparatus And Associated Methods" (SILA:073)
	C75	Copending U.S. Patent Application Serial No. 10/075,094, filed February 13, 2002, "Radio-Frequency Communication Apparatus And Associated Methods" (SILA:074)
	C76	Copending U.S. Patent Application Serial No. 10/075,098, filed February 13, 2002, "Apparatus And Methods For Generating Radio Frequencies In Communication Circuitry" (SILA:075)
	C77	Copending U.S. Patent Application Serial No. 10/075,122, filed February 12, 2002, "Digital Architecture For Radio-Frequency Apparatus And Associated Methods" (SILA:078)

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	C78	Copending U.S. Patent Application Serial No. 10/083,633, filed February 26, 2002, "Apparatus And Methods For Calibrating Signal-Processing Circuitry" (Sila:080)
	C79	Copending U.S. Patent Application Serial No. 10/081,121, filed February 22, 2002, "Calibrated Low-Noise Current And Voltage References And Associated Methods" (Sila:095)
	C80	Copending U.S. Patent Application Serial No. 10/074,591, filed February 13, 2002, "Apparatus For Generating Multiple Radio Frequencies In Communication Circuitry And Associated Methods" (Sila:096)
	C81	Copending U.S. Patent Application Serial No. 10/075,099, filed February 12, 2002, "Notch Filter For DC Offset Reduction In Radio-Frequency Apparatus And Associated Methods" (Sila:097)
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	C84	Copending U.S. Patent Application Serial No. 10/081,730, filed February 22, 2002, "Method And Apparatus For Synthesizing High-Frequency Signals For Wireless Communications" (Sila:106)
	C85	Copending U.S. Patent Application Serial No. 10/079,057, filed February 19, 2002, "Apparatus And Method For Front-End Circuitry In Radio-Frequency Apparatus" (Sila:107)
	C86	Allen, "Complex Analog Filters Obtained From Shifted Lowpass Prototypes," September 1985, 118 pgs.
	C87	Motorola Communications Semiconductor Product Division, "A 1.9 GHz Chipset For PCS Applications," Microwave Journal, No. 6, June 1995, 3 pgs.
	C88	Search Report for PCT/US02/00896; October 4, 2002; 7 pgs.
	C89	Copending U.S. Patent Application Serial No. 09/708,339, filed November 8, 2000, "Method And Apparatus For Operating A PLL With A Phase Detector/Sample Hold Circuit For Synthesizing High-Frequency Signals For Wireless Communications" (Sila:035C1)

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Exam. Init.	Ref. Des.	Citation
	C90	Copending U.S. Patent Application Serial No. 09/999,702, filed October 31, 2001, "Method And Apparatus For Synthesizing Dual Band High-Frequency Signals For Wireless Communications" (Sila:060C1)

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